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termine motion of spool and weight. [From problems in Mechanics at Harvard University.]

⁂ Solutions of these problems should be sent to B. F. Finkel not later than November 10.

AVERAGE AND PROBABILITY.

80. **Proposed by G. B. M. ZERR, A. M., Ph. D., Professor of Mathematics and Science, Chester High School, Chester, Pa.**

A box contains 100 balls marked from 1 to 100. 13 balls are drawn at random. What is the chance that the balls marked from 1 to 10 are included in the 13 drawn ?

81. **Proposed by LON C. WALKER, Graduate of Leland Stanford, Jr., University, Palo Alto, Cal.**

Find (1) the mean distance of all points on a side of an equilateral triangle from the opposite vertex; and (2), the average length of a line drawn at random across an equilateral triangle.

⁂ Solutions of these problems should be sent to B. F. Finkel not later than November 10.

MISCELLANEOUS.

81. **Proposed by G. B. M. ZERR, A. M., Ph. D., Professor of Mathematics and Science, Chester High School, Chester, Pa.**

A cask in the form of a middle frustum of a spheroid, middle diameter $2b$, end diameters each $2c$, length $2d$, is lying in a horizontal position. The distance from middle of top to water is $b+e$, $e<b-c$. How much water is in the cask ?

82. **Proposed by A. H. BELL, Hillsboro, Ill.**

Four spheres of equal radii$=r=5$, are in contact, and form a triangular period. How large is the sphere that can be placed in middle and be in contact with the four spheres ?

⁂ Solutions of these problems should be sent to J. M. Colaw not later than November 10.

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EDITORIALS.

Prof. J. O. Mahoney has been elected teacher of mathematics in the Dallas High School, Dallas, Texas.

Mr. Peter Field, Fellow in Cornell University, has been appointed Professor of Mathematics in Carthage College, Carthage, Ill.

Dr. J. V. Westfall, Honorary Fellow in Cornell University, has been appointed Senior Instructor in Mathematics in the Iowa State University.

Miss Mary M. Blaine, B. S. (Drury College), has been given a scholarship in the University of Pennsylvania, and has gone there to pursue a course of study in mathematics.